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ABSTRACT

This concise guide is designed to provide educators in universities and colleges with basic information on both the preparation and proper use of overhead transparencies for teaching purposes. Each step in the creation of high quality material is explained and illustrated, and the basic principles underlying learning from projected transparencies is stressed throughout. (Author/DJR)

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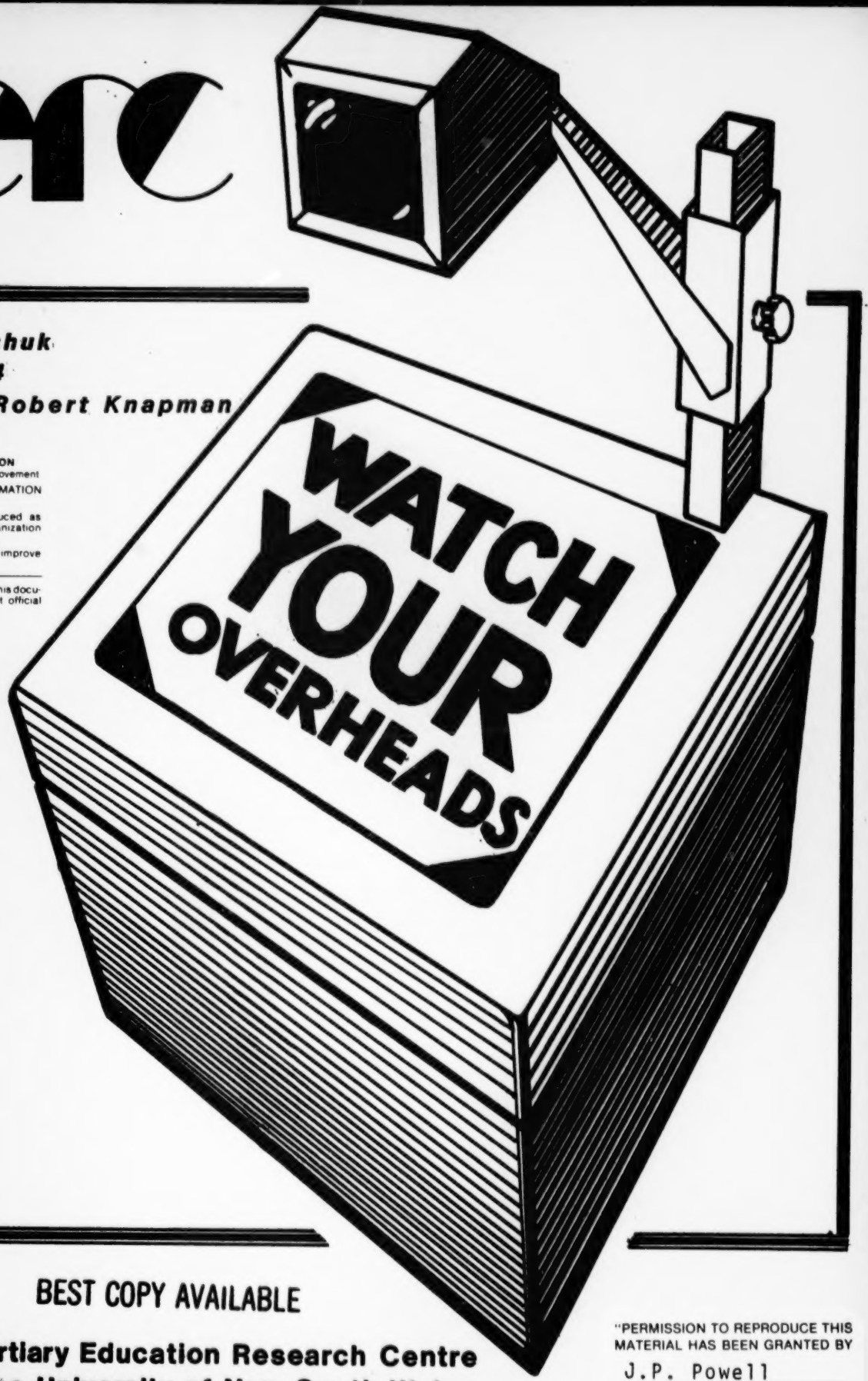

George Pashuk
March 1984
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WATCH YOUR OVERHEADS:

A GUIDE TO THE PRODUCTION AND USE OF OVERHEAD TRANSPARENCIES

George Pashuk

March 1984

Graphics: Robert Knapman

Tertiary Education Research Centre

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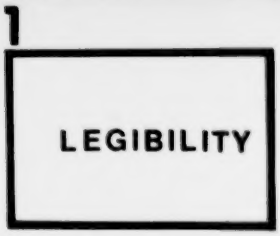
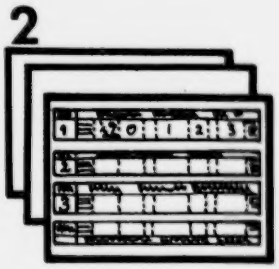
People remember about 10% of what they hear,
and about 20% of what they see.

But they remember as much as 65%
of what they hear and see together.

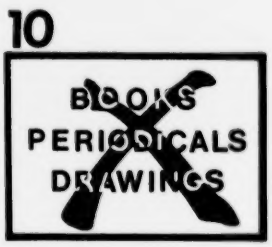
The question most often asked of a producer of visual aids is "What is the single most serious problem encountered in visual aids presentations?' It can be unhesitatingly replied that the most serious and widespread problem with visual material concerns its lack of legibility.



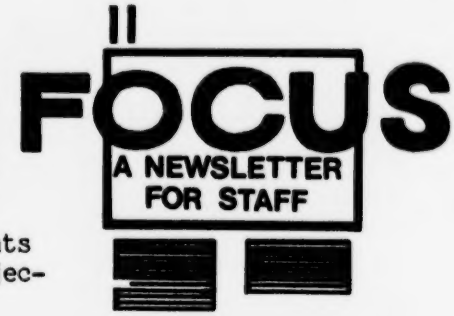
Materials crammed with data - excessive, illegible and confusing- appear with monotonous regularity in classrooms, workshops, seminars and conferences. Occasionally we even hear the excuse "Sorry about this transparency; I know you can't all read it so I'd better read it out for you" or "Don't worry if you can't see what's on the screen . . . I'll give you a handout afterwards to make everything clear".



But in most cases speakers seem actually unaware of just how bad the visual material is; otherwise they would never use it. This particularly bad material typically originates from books, periodicals, drawings and scientific papers. Original material from such sources is designed primarily to be read and is thus not always suitable for projection until we have made some radical modifications to it.



For example an A-4 page of print may be perfectly readable if viewed from normal reading distance, about 35 cm. But make it into a transparency and project it on a normal screen and it is now legible only up to 3 metres distance from that screen. Since the average lecture hall may be about 10-18 metres long it follows that students sitting at the back simply cannot read that projection no matter how good their eyesight.



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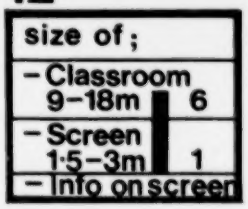

Hence all elements of projected material must be a certain minimum size to be legible to an audience, whether these elements be lettering, symbols, figures or lines. A realistic legibility formula must incorporate three factors: (i) size of the hall (ii) size of the screen and (iii) amount of information on the screen (including letters, symbols, lines, etc.).

Since the average lecture hall is about 10 to 18 metres long and screen width varies from 1.5 to 3 metres, it follows that on average a hall will be about 6 times as long as the screen is wide.

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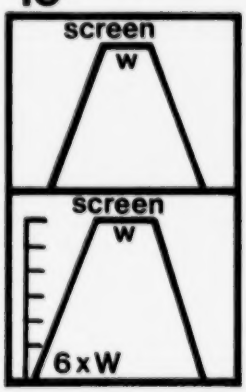

Projected material which is made legible for the furthest viewer (seated 6 screen widths away or, more precisely, 6 widths of the projected image) then becomes automatically legible for all other viewers wherever they may be seated.

A very rough way to check legibility of transparencies is therefore to view the transparency itself from a distance of 6 times its own width - the "6W" rule. This roughly simulates the view of a student sitting in the far corner of that lecture hall in which you will be projecting.

An electric typewriter is the quick, easy way of preparing original material for transparencies. But because the type size is relatively fixed, you must limit your typing area by working within a 120 x 95 mm template. Enlarging this to transparency size will then automatically satisfy the requirement of the '6W' rule. The 120 x 95 mm template will accommodate at most only 11 lines of double-spaced text.

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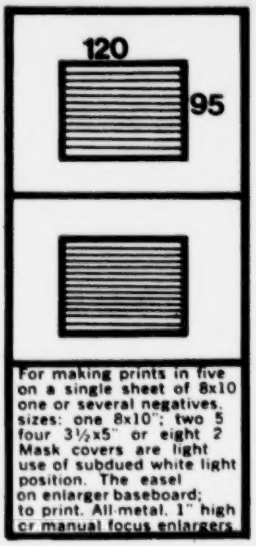

When typing allow ample white space all around the template and always use a new, fresh ribbon for good results. Put reversed carbon paper underneath to make the lettering tidier (no chinks) and darker. The result is more uniform lettering with excellent contrast and appearance.

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typing original
–fresh ribbon
–reversed carbon
–1inch margins

reversed carbon gives better LEGIBILITY

IBM or similar electric typewriters offer several typefaces; for optimal legibility select one which is both simple and bold. Letter Gothic and Orator are good choices but Orator has capitals only (upper case).

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various type faces and double spacing help legibility!

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ORATOR, EVEN DOUBLE SPACE, IS DIFFICULT TO READ.

We know that continuous text in upper case is always hard to read, particularly if single spaced, because of the lack of variation in character height. So use Gothic for continuous text, and keep Orator for headings, captions and key words.

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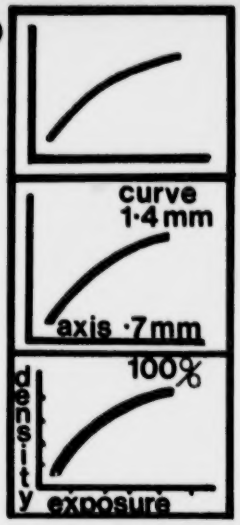
CAPTIONS
HEADINGS
KEYWORDS

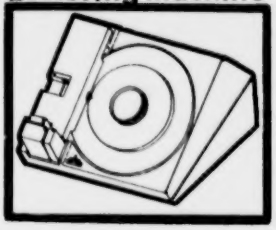
Use the same template size also when preparing graphs, but in this case use a grid template. Axes are constructed first and made clearly visible but not overconspicuous (min. thickness 0.3-0.4mm). The curves have to be most prominent (min. thickness 0.7mm). Labels, numerals and other lettering are then added by typewriter.

19



Lettering machines such as the Kroy are extremely useful. They are like a combination of typewriter, Dymo labelmaker and Letraset. They economically provide opaque letters on a continuous transparent stick-on tape containing your lettering, all correctly spaced and level, in a wide range of 18 type styles and a number of sizes. Four of these sizes need no further enlargement for transparency making; Helvetica Medium is bold and simple and is our preferred choice for most purposes. Remember that the tape is never used directly on the actual transparency.

Lettering Machine



Enlargement of line work (graphs, diagrams and typed text) to make transparencies of very high quality is easily done on the Vertical Copying Camera Repromaster 2001. With this system it is also possible to make half-tone transparencies of excellent appearance.

Repromaster

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28

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halftones:
- appealing
- eye catching
- helps understanding

With the same system black and white originals can be changed to single colour transparencies, for which six basic colours are available. Through the technique of overlays a combination of up to 6 colours, plus black and white, becomes possible. The size of image on each transparency can be controlled very accurately with the Repromaster. This gives high quality, permanent results of photographic grade but is relatively more expensive than the alternatives described below.

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colour makes it easier.....
to point
to emphasise
to differentiate
to teach & learn

We can also add colour to black and white originals by using coloured transparency material in the Thermofax copier, which is both easy and cheap. While the results are not always as attractive as may be desired for some purposes, the process is steadily being improved and may well suit your particular needs.

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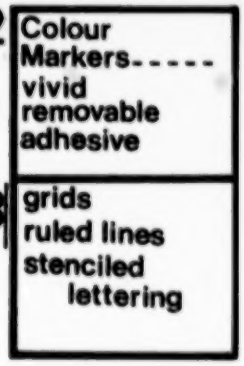
COLOUR
negative & positive

Not enough use is made of coloured transparency markers. Unlike those of a few years ago, they are now of excellent quality and most manufacturers offer a variety of colours and sizes. When selecting colours look for those that are bright, vivid and strong, since some lighter shades such as yellow and orange are very difficult to see. Make sure your lettering height is not less than 8-10mm for text and >10 mm for headings.

42



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About half the transparencies we make are from typewritten originals. The rest are divided between artwork especially prepared for transparency production, and artwork borrowed from existing published materials such as books, periodicals and scientific papers.

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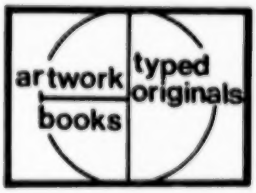
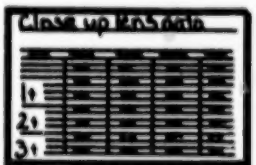


This last group is least suitable for making transparencies. Consider the example of a typical table crowded with data in very small lettering. All that needs to be explained from this table is the effect of 3 types of close-up lenses on image size. This simple message is best carried by (i) reducing data to essentials and (ii) rounding off all the figures.

54



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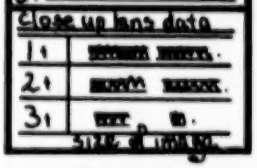

Sometimes even quite simple tables can be usefully replaced by graphs. In the accompanying example the population increase is not immediately evident; by using a graph, however, comparison is made much easier. Remember to use rounded figures and always be very sparing in the use of captions.

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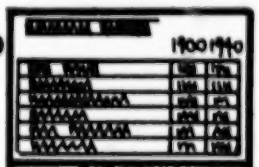

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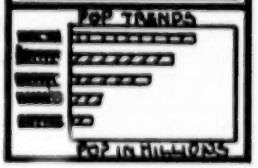

Tables and graphs are very useful for showing trends and comparisons and are always most effective when they illustrate just one concept or idea at a time. On the other hand just by using an imaginative drawing you may sometimes be able to convey the comparison at a glance without any numbers or words at all.

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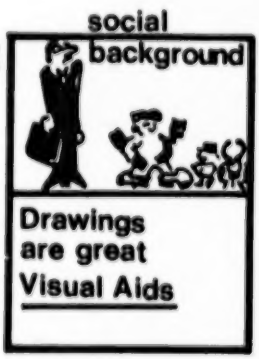
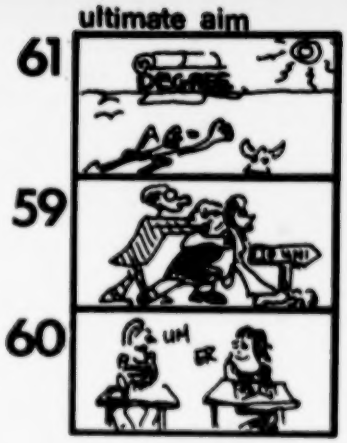


Feelings, attitudes and emotions can be conveyed most easily by drawings. The accompanying example explains the reason why most students enter university, namely, to obtain a degree,

* * *

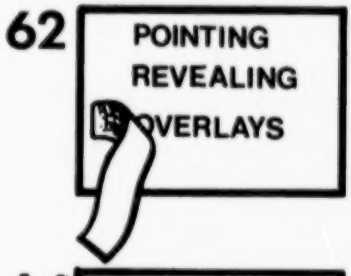
and the next, some of the problems they encounter.



When using projected transparencies good communication is facilitated if particular presentation techniques are used. A pointer is recommended; but be sure to place it on the transparency and leave it there until the concept or issue has been discussed. Never wave it around and always avoid pointing it directly at the screen. An hexagonal pencil serves well as it stays put on the projector stage, but pointers can also be made from coloured acetate or cardboard.

It is a good policy to have the projector lamp ON only when you actually want students to be looking at the screen. Then switch it OFF when changing the transparency or when you move on to a new point.

Another useful technique is "revealing": showing only the particular part of the transparency under discussion. The rest is covered with opaque paper on the projector stage, and by moving this you can gradually disclose or reveal the rest of the information when you are ready for it. This gives precise control over the rate of information flow.



When a complicated array of information has to be presented, a number of separate transparencies each revealing a part of the whole can be progressively overlayed to finally reveal the entire complex picture.

Remember that any opaque object will produce an image on the screen when placed on the projector stage.

In addition there are some chemical reactions which if performed in a transparent flat dish placed on the stage can then be watched by all the class simultaneously.

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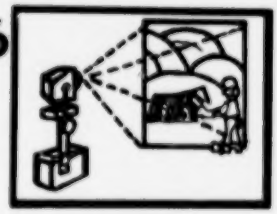

It is even possible to simulate movement. Polarised material is affixed to the transparency at appropriate points, and projection is carried out through a polar motion spinner. This accessory is available for any projector type.

Finally a few other useful points to remember about overhead projection. Some projectors carry their own spare lamps so that if one blows, a flick of the wrist brings the good one on. But if this facility is not provided, remember to always carry a spare.

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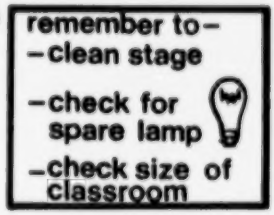
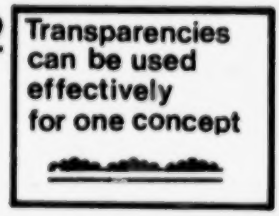


Keep the glass projector stage clean and have a box of tissues and an antistatic cloth handy. Remember that clean transparencies and projector stage contribute to better communication.

Use only one transparency for one concept or idea.

72



Choose several simple transparencies instead of one complicated one.

Use duplicates whenever you need to refer back to the same earlier transparency several times.

And when you have finished with all your transparencies, turn the projector OFF.

In conclusion, visual aids can help greatly in overcoming the limitations of the spoken word; they can reinforce, clarify, aid understanding and consequently help maximise the learning process.

But remember that visual aids are only as effective as you are prepared. So the message is

REHEARSE,

REHEARSE

AND

REHEARSE!

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REHEARSE

REHEARSE

REHEARSE

If you work to become totally familiar with all your material and learn to integrate and balance the spoken and visual elements in your presentation, you will then be well on the path to better communication, better understanding and more effective learning for your students.

References:

Many of the recommendations in this booklet have been based on research data from:

Hints for Better overhead Projection

published by Kodak (Australasia) Pty. Ltd. (1983) and available from their sales offices.

For further guidance on making and using transparencies, you may also consult:

Lee A. & Pashuk G. (1982) How to use the overhead projector. In Cox K. & Ewan C. The Medical Teacher. Melbourne: Churchill Livingstone.